

The spontaneous extinction of these birds is therefore very difficult to understand. Nevertheless we must admit that natural causes were opposed to the indefinite duration of certain species. To judge from the known facts, it seems to be demonstrated that the largest species of *Dinornis* was no longer in existence when man reached these isolated lands in the midst of the ocean. The other species of the same genus and those of *Palapteryx* appear to have been very rare at this epoch, and not to have long survived the arrival of the hunters; they were consequently in process of natural decrease. On the contrary, the individuals of *Meionornis* and *Euryapteryx* seem to have been very numerous before the moment when the war of extermination, carried on with such improvidence, commenced*. In consequence of geographical conditions they could not emigrate like the reindeer, and their mode of life prevented them from seeking a retreat in the midst of the glaciers, as the chamois has done with us. They were consequently annihilated, but only in modern days, like the Dodo and those other birds of the Mascarene islands, of which M. Alphonse Edwards has recast or completed the history †.

XXII.—On two Species of Alveolites and one of Amplexopora from the Devonian Rocks of Northern Queensland. By ROBERT ETHERIDGE, Jun., and ARTHUR H. FOORD, F.G.S.

[Plate VI.]

Introduction.

THE interesting species described below form part of a collection of Corals lately received by one of us from Mr. R. L. Jack, F.R.G.S. &c., Government Geologist for North Queensland. The localities given on the instructions accompanying the specimens are Regan's, Philp's, and Benville's

* The following shows, according to Dr. Haast, in what proportion the various species of Moas are represented at Glenmark:—*Meionornis casuarinus* alone represents one fourth, and *M. didiformis* one fifth, of the total number of individuals discovered. Then come, in decreasing numbers:—*Palapteryx elephantopus*, *Euryapteryx gravis*, *Palapteryx crassus*, and *Euryapteryx rheides*; *Dinornis gracilis*, *struthioides*, *maximus*, and *robustus* occur in nearly equal numbers. *Dinornis ingens* is represented only by a few individuals.

† "Recherches sur la faune ornithologique éteinte des îles Mascareignes et de Madagascar," by Alphonse Milne-Edwards, 1866-79.

(?) allotments, on the Northern railway, 31 miles from Townville. They are said to have been collected on a "limestone reef." The interest of the collection generally lies chiefly in the fact that it may be looked upon as supplementary to that described by Prof. H. A. Nicholson, M.D., and one of the writers in 1879 ('Annals,' 1879, ix. pp. 216, 265), from the Burdekin district. The appearance of the specimens is peculiar, and would at first sight give rise to the impression that they were of a travelled nature, as they are much eroded and with their angles rounded. A closer examination, however, leads to the conviction that they are only portions of the limestone-reef much weathered, and perhaps worn by the action of running water. This view is borne out by the appearance here and there of the coral projecting above the surface of the blocks, in a fine state of preservation, and weathered clear of the matrix. The external colour of the masses is bluish grey, but on a fractured surface the limestone is seen to be black, or deep bluish black, and very crystalline. This latter circumstance has rendered a satisfactory examination of the corals, even by means of thin sections, very difficult, and in some cases almost impracticable.

Genus ALVEOLITES, Lamarck, 1801.

(Syst. des Anim. sans Vert. p. 375.)

[Emend. Nicholson, 1879.]

Alveolites alveolaris, de Koninck, sp.

(Pl. VI. figs. 1-1 c.)

? *Billingsia alveolaris*, de Kon. Recherches sur les Foss. Pal. de la Nouv. Galles du Sud, Brussels, 1876-77, p. 75, pl. ii. figs. 4, 4 a, 4 b.

Sp. char. The corallum in this species is massive and apparently lobate. The corallites are minute (about two in the space of 1 millim.), closely contiguous, of considerable length, their walls somewhat thick; the apertures of the cells present an irregularly lunate form, and in some of them a single tooth-like septum may be detected. The tabulæ are well developed, horizontal, or a little curved, and tolerably numerous. The mural pores are large, and consist of a single series placed at pretty regular intervals of about half a millim. apart.

Obs. The highly crystalline condition of the specimens representing this species has rendered its determination very difficult. The specimens occur in the shape of weathered masses in which some parts harder than the rest stand out in relief and exhibit tolerably well the structures described above,

though these were studied more effectively by means of microscopic sections. One of the specimens has the surface (of which only a very small portion is preserved) studded with small conical elevations, about 1 centim. apart measured from their summits. Of the significance of these we are unable to form an opinion. We do not know of their occurrence in any other species of *Alveolites*.

Three species of *Alveolites* have been recorded from the Devonian rocks of Australia. Of these, one only (*Alveolites subaequalis*, Edwards & Haime) need be compared with the present form, and the much smaller corallites of the latter afford sufficient grounds for their separation.

In his 'Rech. sur les Foss. Pal. de la Nouv. Galles du Sud,' M. de Koninck instituted a genus, under the name of *Billingsia*, for a Devonian coral from the neighbourhood of Yass, New South Wales, which the author describes as apparently devoid of tabulae ("Les planchers semblent faire défaut") and as possessing lateral openings in the walls of the corallites resembling those of *Syringopora*, except that in *Billingsia* the walls are closely united, and not separated from one another as they are in *Syringopora*. We are of opinion that M. de Koninck has entirely misunderstood the structure of this coral. The figures given by that author (see pl. ii. of the work above cited) accord remarkably well with our form; and although he states in his description that tabulae are wanting, they appear to be shown clearly enough in fig. 4 of his work, which we reproduce (fig. 1, *d*).

Assuming, then, that the *Billingsia alveolaris* is identical with the Queensland specimens, we are of course unable to accept M. de Koninck's suggestion that the present species is transitional between *Aulopora* and *Syringopora*.

Locality and Horizon. Regan's allotment, Northern railway, 31 miles from Townsville, North Queensland. Devonian.

Collection. Geological Survey of North Queensland, Townsville, N. Q.

Alveolites alveolaris, var. *queenslandensis*, Eth. & Foord.
(Pl. VI. figs. 2-2*b*.)

This form differs from the one described above chiefly in the size of the corallites, which are considerably larger than those of *A. alveolaris*. The present form appears to be branching and lobulate, and occurs in large weathered and rounded fragments, one of which measures about 12 centim. in its greatest length, and about 6 centim. in thickness, but the specimen must have been considerably larger when perfect. Scarcely any of its surface remains, and microscopic

sections do not yield very satisfactory results, on account of the extensive mineral alteration that the fossil has undergone.

In their longer diameter the corallites measure about two thirds of a millimetre, in their shorter about one third, or even less. The tabulæ are somewhat numerous, horizontal or oblique, and sometimes curved, and in some places they anastomose. Mural pores large and apparently numerous.

Locality and Horizon. Regan's allotment, Northern railway, 31 miles from Townsville, North Queensland. Devonian.

Collection. Geological Survey of North Queensland, Townsville, N. Q.

Genus AMPLEXOPORA, Ulrich, 1882.

Amplexopora Konincki, Eth. & Foord.
(Pl. VI. figs. 3-3 c.)

The present species, like the others from the same locality, has undergone a good deal of alteration by weathering and by crystallization, so as to obscure, in a measure, the structure of the organism. It was apparently a massive form. The calices are polygonal in outline, with the angles rounded; minute and variable in size, somewhat thin-walled; from three to four occupy the space of 1 millim. Spiniform corallites may be seen in transverse sections at the angles of junction of many of the cell-apertures. The corallites are well shown on portions of the specimens in which the matrix that filled them has been removed by weathering. In a longitudinal section the tabulæ are seen to be remarkably regular in their disposition, and are placed horizontally in the tubes, from one to two tube-diameters apart. The filling in of the coral is calcite of fibrous structure (arragonite?), the fibres cutting the walls of the corallites, as well as crossing the visceral cavities.

Obs. It was not until a close examination had been made of thin sections of this species that we were able to arrive at a definite conclusion as to its affinities; and in this respect material assistance was rendered us by the careful observations of the artist, Mr. A. S. Foord, to whose skilful hands the execution of the plate had been entrusted.

We were at first under the impression that it might be a *Chaetetes*, but the presence of the spiniform corallites set this question at rest. Not the least interesting fact is the discovery of this genus at a new geological horizon, giving to it a much greater geographical distribution.

We beg to associate with this species the name of Prof. L. G. de Koninck, of Liège, the renowned Belgian palæontologist.

Locality and Horizon. Regan's allotment, Northern railway, 31 miles from Townsville, North Queensland. Devonian.

Collection. Geological Survey of North Queensland, Townsville, N. Q.

EXPLANATION OF PLATE VI.

- Fig. 1.* *Alveolites alveolaris*, de Kon., sp. Portion of a specimen, showing the elevations upon the surface. Enlarged twice.
- Fig. 1 a.* Portion of another specimen, showing the mural pores. Enlarged about 25 times.
- Fig. 1 b.* Transverse section of this specimen. Enlarged about 25 times.
- Fig. 1 c.* Longitudinal section. Enlarged about 25 times.
- Fig. 1 d.* Copied from pl. ii. fig. 4, 'Foss. Pal. Nouv. Galles du Sud,' by L. G. de Koninck.
- Fig. 2.* *Alveolites alveolaris*, var. *queenslandensis*, Eth. & Foord. Transverse section. Enlarged about 25 times.
- Fig. 2 a.* Longitudinal section of the same species, showing pores. Enlarged about 25 times.
- Fig. 2 b.* Another longitudinal section, showing the tabulæ. Enlarged about 25 times.
- Fig. 3.* *Amplexopora Konincki*, Eth. & Foord. Portion of the surface, enlarged about 50 times.
- Fig. 3 a.* Transverse section. Enlarged about 50 times.
- Fig. 3 b.* Transverse section. Enlarged about 25 times.
- Fig. 3 c.* Longitudinal section. Similarly enlarged.

XXIII.—Crustacea of the 'Albatross' Dredgings in 1883.

By SIDNEY I. SMITH*.

VERY little has yet been published in regard to the zoological results of the deep-sea explorations carried on during the summer of 1883, by the United States Fish Commission, although the dredgings were among the most important yet made. Some of the remarkable forms of fishes discovered have been described by Drs. Gill and Ryder, but the writer's report on the Decapod Crustacea (eighty pages of text with ten plates), recently put in type for the Fish Commission Report for 1882, is the first detailed report on the zoological collection made by the 'Albatross,' and affords an opportunity for a brief review of the results of the study of the higher Crustacea, which is here published by permission of the Commissioner of Fish and Fisheries.

The dredgings of the 'Albatross' extended from off Cape Hatteras to the region of George's Banks. The number of dredging-stations was 116, of which 30 were in less than 100 fathoms, 35 between 100 and 500 fathoms, 19 between 500

* From the 'American Journal of Science,' July 1884, pp. 53-56.